CLAIMS

We claim:

1. An analyte level measurement device having at least one integrated sensor, comprising:

an infrared source for emitting an IR beam into an ATR plate, the IR beam having components at least in the region of a referencing wavelength and a measuring wavelength, the ATR plate having a measurement surface for contact with a skin surface of a user and for directing the IR beam against the skin surface, at least one IR sensor for measuring an absorbance of at least the referencing wavelength and the measuring wavelength; and

a sensor assembly having a contact surface, the sensor assembly being configured to detect at least one biometric feature indicative of the user.

2. The device of claim 1 wherein the ATR plate is configured to permit multiple internal reflections against the measurement surface prior to measuring the absorbance.

3. The device of claim 2 wherein the ATR plate is configured for about 3 about 25 internal reflections against the measurement surface.

4. The device of claim 1 further comprising a pressure measurement sensor situated to measure a pressure of the skin surface against the ATR plate.

5. The device of claim 1 wherein the analyte is glucose and the referencing wavelength is between about 8.25 micrometers and about 8.75 micrometers.

6. The device of claim 1 wherein the analyte is glucose and the measuring wavelength is between about 9.50 micrometers and about 10. 00 micrometers.

7. The device of claim 1 further comprising a processor for comparing the measuring wavelength to the referencing wavelength.

8. The device of claim 1 further comprising a display for displaying a measurement selected from the group consisting of an analyte concentration, an analyte amount, and a trace presence of an analyte.

9. The device of claim 1 wherein the infrared source is an LED.

10. The device of claim 1 wherein the infrared source is a non-laser source.

11. The device of claim 1 wherein the contact surface is flush with the measurement surface.

12. The device of claim 1 wherein the sensor assembly is adjacent to a single side of the ATR plate.

13. The device of claim 1 wherein the sensor assembly is adjacent to at least two sides of the ATR plate.

14. The device of claim 1 wherein the sensor assembly is surrounded by the ATR plate.

15. The device of claim 1 wherein the sensor assembly comprises a plurality of sensor cells arranged such that at least one sensor cell is adapted to detect a capacitive effect from at least a portion of the skin surface.

16. The device of claim 15 wherein the plurality of sensor cells is arranged in an array.

17. The device of claim 15 wherein each sensor cell is adapted to detect the presence of a ridge or a valley from the skin surface.

18. The device of claim 1 wherein the sensor assembly is adapted to detect an image of the biometric feature.

19. The device of claim 18 wherein the infrared source is adapted to illuminate the biometric feature for measurement of the feature.

20. The device of claim 19 further comprising a photosensor for detecting the image.

21. The device of claim 20 wherein the photosensor is a solid state imager.

22. The device of claim 18 wherein the sensor assembly is further adapted to compare the detected image against a stored image.

23. The device of claim 18 further comprising a transmitter for transmitting the image to an external receiving device.

24. The device of claim 1 wherein the biometric feature is at least a portion of a fingerprint of the user.

25. A method for selectively determining an analyte level from a skin surface, comprising.

contacting the skin surface against a measurement surface of an ATR plate;

measuring at least one biometric feature from the skin surface;

comparing the measured biometric feature against a predetermined biometric feature indicative of a predetermined user;

if the measured biometric feature matches the predetermined biometric feature, then irradiating the skin surface with an IR beam having components at least in a region of a referencing wavelength and a measuring wavelength through the ATR plate to produce a reflected IR beam indicative of the analyte level; and

detecting and quantifying the referencing wavelength and the measuring wavelength components in the reflected IR beam.

26. The method of claim 25 further comprising detecting a pressure exerted by the skin surface against the ATR plate prior to detecting and quantifying.

27. The method of claim 25 wherein contacting the skin surface against the measurement surface further comprises contacting the skin surface against a contact surface of a sensor assembly.

28. The method of claim 25 wherein measuring at least one biometric feature comprises measuring a capacitance of at least a portion of the skin surface, wherein the measured capacitance is unique to at least a portion of the skin surface.

29. The method of claim 28 wherein comparing the measured biometric feature comprises comparing the measured capacitance against a predetermined capacitance indicative of the predetermined user.

30. The method of claim 25 wherein measuring at least one biometric feature comprises illuminating at least a portion of the skin surface and detecting a reflected image.

31. The method of claim 30 wherein comparing the measured biometric feature comprises comparing the reflected image against a predetermined image indicative of the predetermined user.

32. The method of claim 31 wherein the reflected image is transmitted to an external receiving unit for comparison against the predetermined image.

33. The method of claim 25 further comprising maintaining the skin surface against the ATR plate at an adequate pressure while irradiating the skin surface.

34. The method of claim 25 further comprising maintaining the skin surface against the ATR plate at a constant and above a selected minimum pressure while irradiating the skin surface.

35. The method of claim 25 further comprising normalizing the referencing wavelength and the measuring wavelength components prior to contacting the skin surface.

36. The method of claim 25 wherein the referencing wavelength is between about 8.25 micrometers and about 8.75 micrometers.

37. The method of claim 25 wherein the measuring wavelength is between about 9.50 micrometers and about 10.00 micrometers.